

Improving power factor and
enhancing power quality of your network.

Low voltage capacitors CLMD

Enhancing power quality and energy efficiency

Applications in several areas of the power value chain

Hitachi Energy is a pioneering technology leader in electrification products, robotics and motion, industrial automation and power grids, serving customers in utilities, industry and transport & infrastructure globally. Continuing a history of innovation spanning more than 130 years, Hitachi Energy today is writing the future of industrial digitalization and driving the Energy and Fourth Industrial Revolutions. As title partner of Formula E, the fully electric international FIA motorsport class, Hitachi Energy is pushing the boundaries of e-mobility to contribute to a sustainable future. Hitachi Energy operates in more than 100 countries with about 136,000 employees.

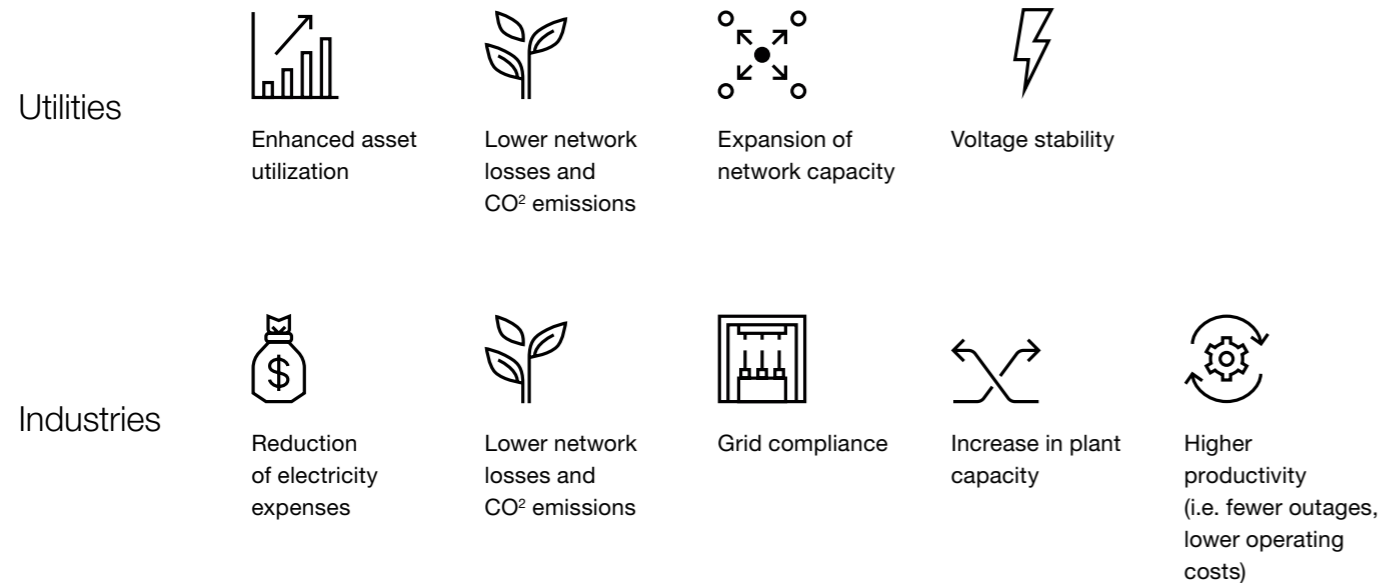
Hitachi Energy offers a wide range of products from 208 V up to 1200 kV that help enhance the reliability, efficiency and quality of power in transmission and distribution grids, power plants and industries while minimizing environmental impact. The wide product range is complemented by a comprehensive service offering.

Power quality is a major concern for transmission and distribution utilities, industries, transport and infrastructure sectors. Poor power quality affects grid reliability, productivity,

leads to higher operating costs and penalties for non-compliance with grid codes. Hitachi Energy is a technology leader with a wide range of products, systems and services that improve power quality including capacitors and filters, power electronics-based compensators and software solutions. The offering is available across the power value chain for low, medium and high-voltage applications, helping to shape a stronger, smarter and greener grid.

Capacitors play an important role in power grids and electrical networks. They compensate reactive power in the electrical network and increase the power factor. This results in a more stable grid with increased transmission capacity and reduced losses.

The benefits of enhanced power quality can be seen across the power value chain:



CLMD capacitor units

Features and benefits

Hitachi Energy CLMD capacitors are your best choice for the most demanding applications, thanks to their rugged and flexible design.

Design

The building block of each CLMD capacitor unit is a capacitor winding. These windings undergo vacuum treatment to ensure consistent electrical characteristics. Each winding is then placed in a plastic case and encapsulated in thermo-setting resin in order to obtain a perfectly sealed element. Elements are combined together to form the capacitor unit.

Electrical characteristics

Dielectric losses are less than 0.2 Watt per kvar. Total losses, including discharge resistors, are less than 0.5 Watt per kvar. Available for single and three-phase systems The elements are placed inside a box made of sheet steel and connected in such a way as to supply the single or three-phase power at the required voltage and frequency.

Safe performance throughout the capacitor's life

- The dry type dielectric makes the CLMD capacitors leakage free, minimizing the impact on the environment.
- The sheet steel box is filled with vermiculite which is an inorganic, inert and fireproof material that can absorb the

energy produced or extinguish any flames in case of a possible defect at the end of an element's life.

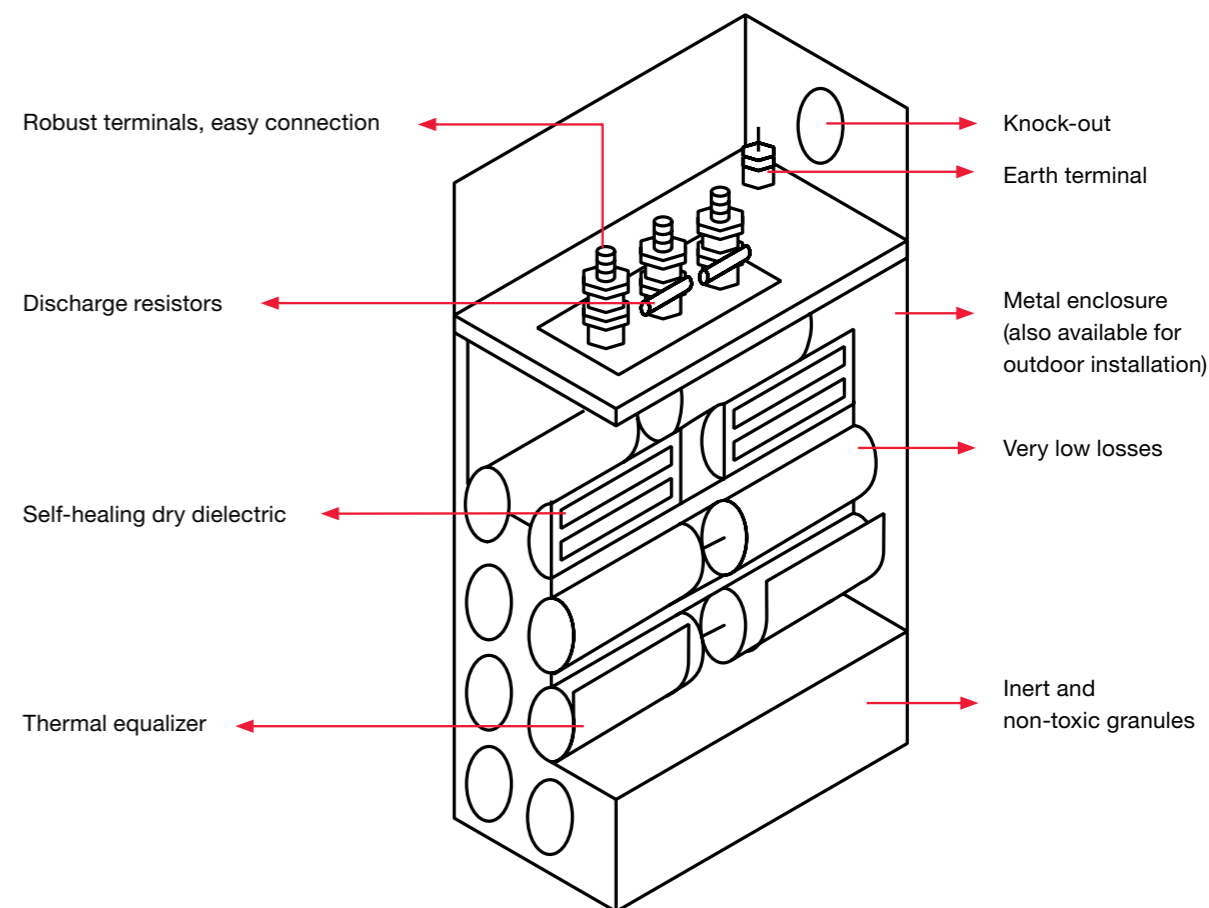
- In the event of a fault developing in the dielectric of the capacitor, the metallized electrode adjacent to the fault is immediately vaporized, thus isolating the fault. The capacitor then continues normal operation. This is commonly called the 'self-healing' principle.
- The capacitor windings are provided with a sequential disconnecter ensuring that each element can be reliably and selectively disconnected from the circuit at the end of its life.
- CLMD capacitors are provided with thermal equalizers to ensure effective heat dissipation. Discharge resistors are also included.
- The use of robust terminals minimizes the risk of damage during installation and reduces maintenance requirements.
- The capacitors comply with the requirements of IEC 60831-1 & 2.

High performance in-house metallized film

Hitachi Energy's completely integrated manufacturing process has resulted in the development of a special high-performance in-house metallized film from which all CLMD capacitors benefit. This film gives high breakdown strength, excellent peak current handling capability, and high capacitance stability and has an optimal self-healing design and a long life.



Construction of CLMD



CLMD capacitor units

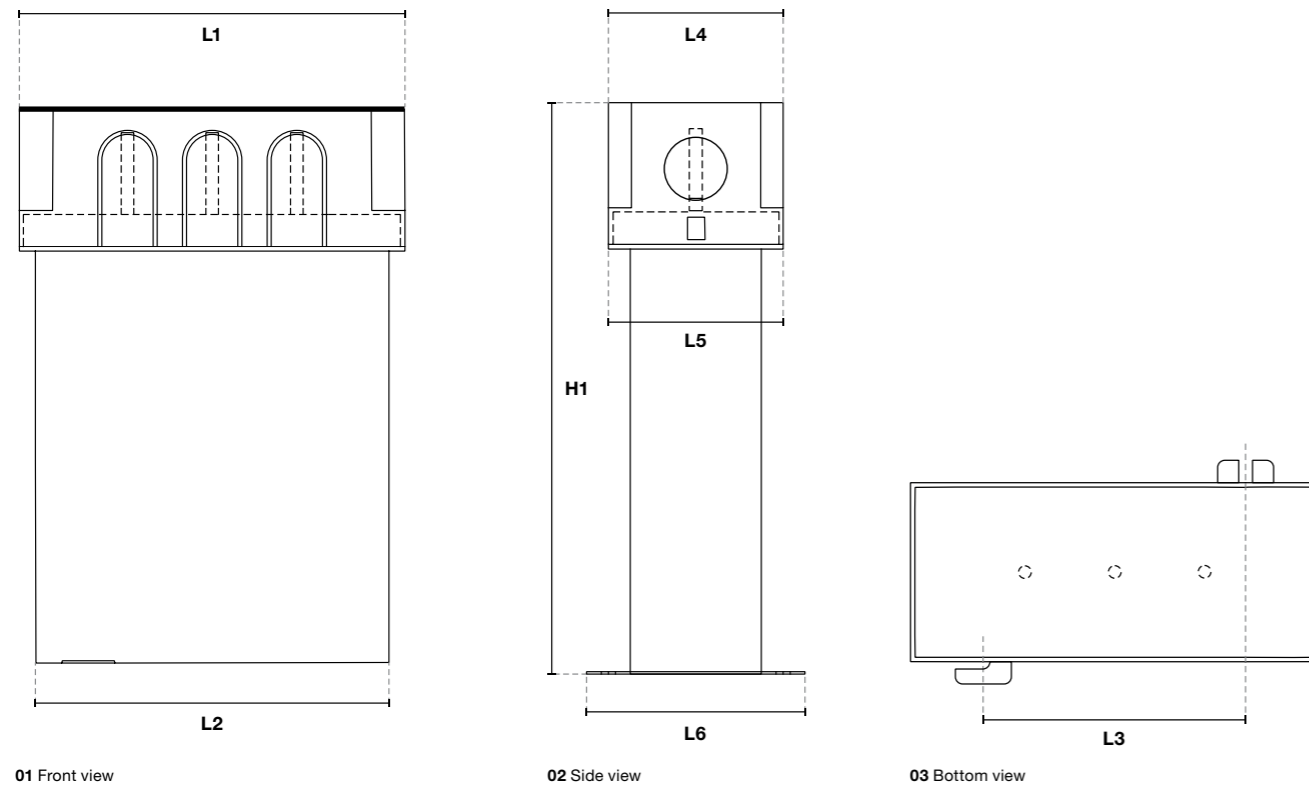
CLMD 13



Features

- Modular and flexible
- Easy parallel connection
- Three M6 electrical terminals
- Fixing: two slots (6.5 mm diameter)

Technical drawings



Dimensions (in mm)

Product name	H1	L1	L2	L3	L4	L5	L6
CLMD 13	262	182	167	117	80	80	100

CLMD capacitor units

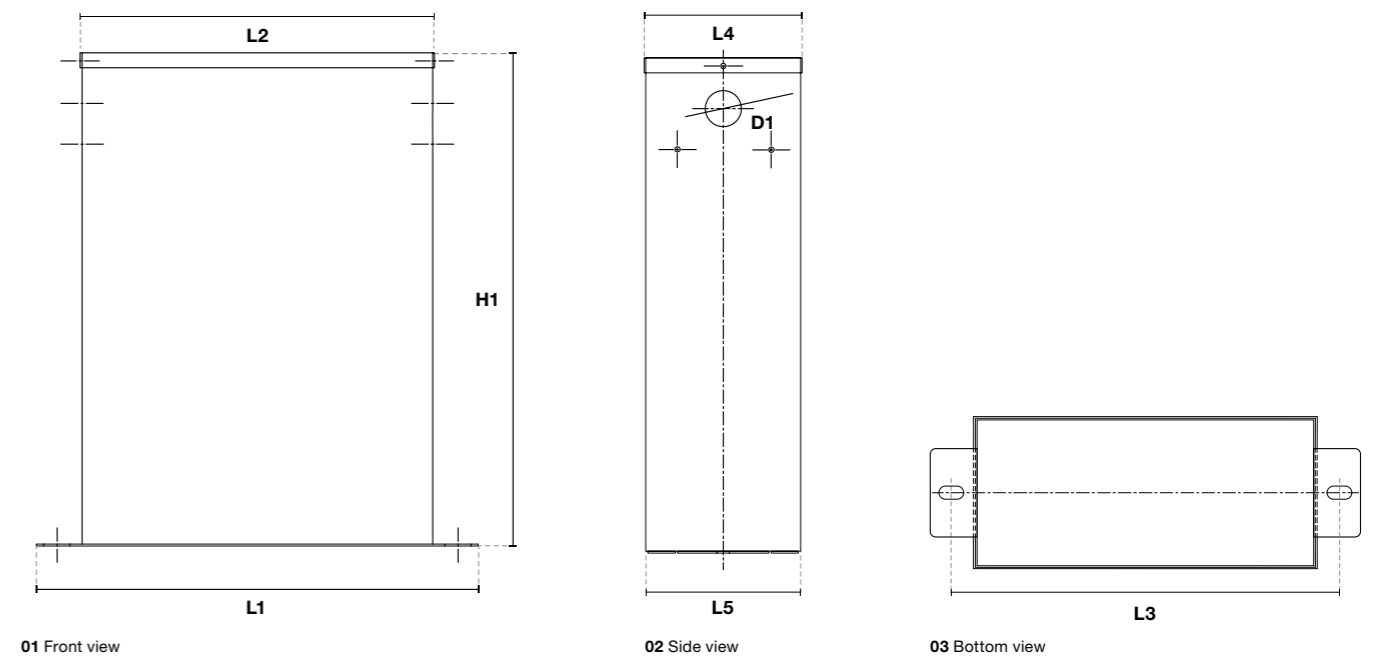
CLMD 43-53-63-83



Features

- Robust electrical terminal (M6, 8, 10 or 12)
- Fixing: two slots 26 x 16 mm
- Protection: IP42

Technical drawings



Dimensions (in mm)

Product name	H1	L1	L2	L3	L4	L5	D1
CLMD 43	275	266	180	226	155	152	37
CLMD 53	310	436	350	396	155	152	37
CLMD 63	485	436	350	396	155	152	37
CLMD 83	670	436	350	396	155	152	37

CLMD capacitor units

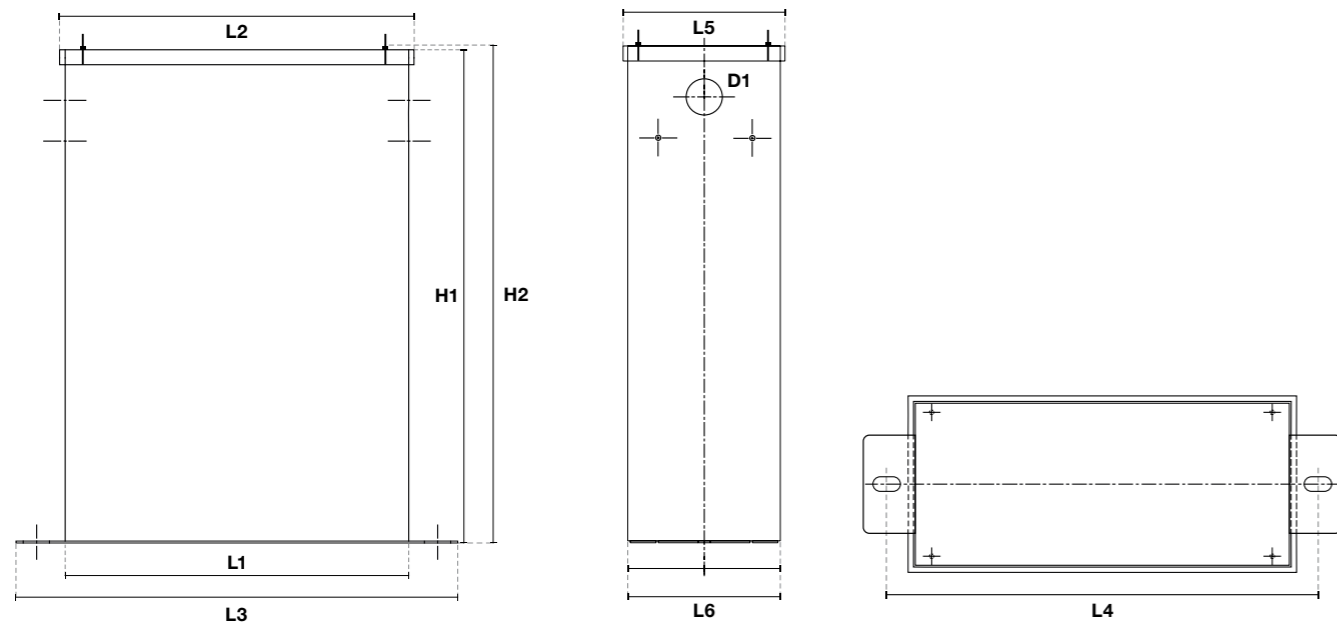
CLMD 45-65-85



Features

- Outdoor design
- Protection: IP54

Technical drawings



01 Front view

02 Side view

03 Bottom view

Dimensions (in mm)

Product name	H1	H2	L1	L2	L3	L4	L5	L6	D1
CLMD 45	275	280	176	185	266	226	162	152	37
CLMD 65	485	490	346	396	436	396	162	152	37
CLMD 85	670	675	346	396	436	396	162	152	37

CLMD capacitor units

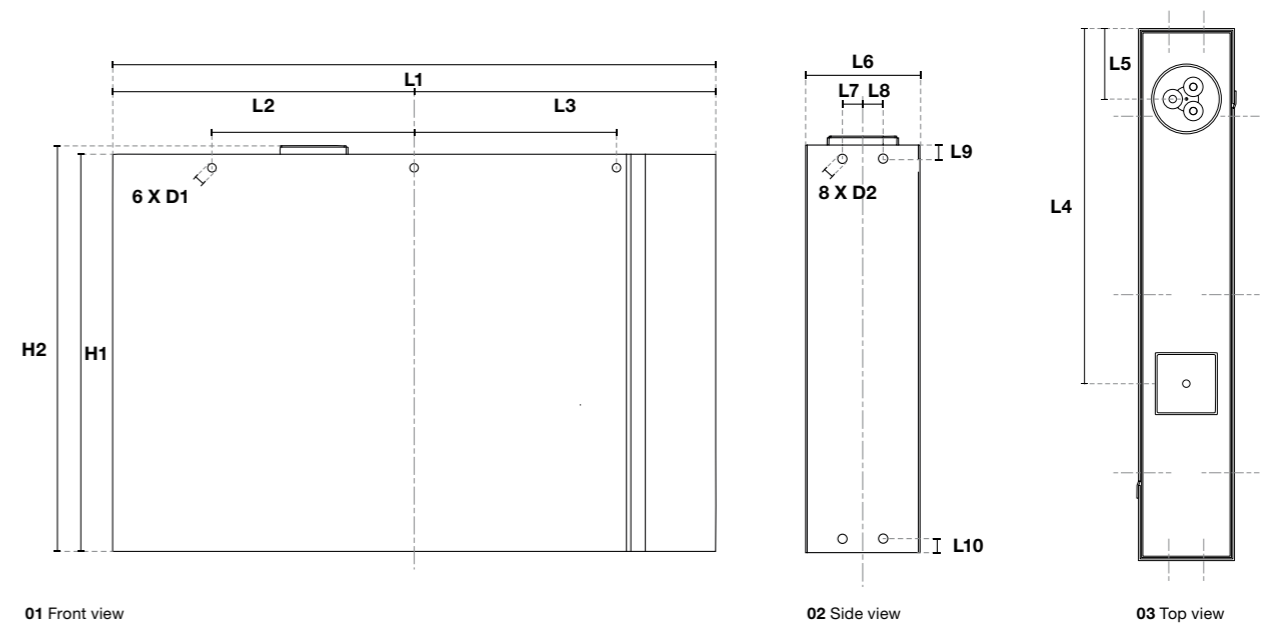
CLMD 33S



Features

- Compact
- High power density
- Three cable connection method
- Eight fixation holes (5.4 mm diameter)

Technical drawings



01 Front view

02 Side view

03 Top view

Dimensions (in mm)

Product name	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	D1	D2
CLMD 33S	220	225	334	112	112	223	44	60	11	11	7.5	7.5	4.2	5.4

Improved power factor for mining industry
CLMD capacitors deliver
higher productivity to the
process by lowering outages
and operating costs.



Technical specifications

Range-50Hz

U network - 230 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD33S	6.3	-	2GCA289064A0030
CLMD33S	10.0	-	2GCA289065A0030
CLMD33S	12.5	-	2GCA289066A0030
CLMD33S	16 (8+8)	-	2GCA289326A0030

U network - 250 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	3.3	-	2GCA281318A0030
CLMD13	6.5	-	2GCA281319A0030
CLMD13	9.5	-	2GCA281320A0030
CLMD45 ⁽³⁾	9.5	-	2GCA282449A0030
CLMD43	13.0	-	2GCA281321A0030
CLMD43	19.0	-	2GCA280953A0030
CLMD53	28.0	-	2GCA280954A0030
CLMD65 ⁽³⁾	28.0	-	2GCA291550A0030
CLMD53	38.0	-	2GCA280955A0030
CLMD63	47.0	-	2GCA280956A0030
CLMD63	57.0	-	2GCA280957A0030
CLMD63	66.0	-	2GCA280958A0030

U network - 380 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD45 ⁽³⁾	2.5	-	2GCA282091A0030
CLMD45 ⁽³⁾	5.0	-	2GCA282092A0030
CLMD45 ⁽³⁾	20.0	-	2GCA282193A0030
CLMD45 ⁽³⁾	30.0	-	2GCA282290A0030

U network - 400 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD33S	5.0	-	2GCA289067A0030
CLMD33S	10.0	-	2GCA289068A0030
CLMD33S	11.4	12.50	2GCA289068A0030
CLMD33S	12.5	-	2GCA289069A0030
CLMD33S	12.6	5.67	2GCA289078A0030
CLMD33S	12.7	7.00	2GCA289078A0030
CLMD33S	12.5	12.50	2GCA289080A0030
CLMD33S	15.0	-	2GCA289070A0030
CLMD33S	20.0	-	2GCA289071A0030
CLMD33S	25.0	-	2GCA289072A0030
CLMD33S	25 (12.5+12.5)	-	2GCA291390A0030
CLMD33S	22.9	12.50	2GCA289071A0030
CLMD33S	25.0	5.67	2GCA289079A0030
CLMD33S	25.4	7.00	2GCA289079A0030
CLMD33S	24.7	12.50	2GCA289081A0030
CLMD33S	26.4	5.67	2GCA289344A0030
CLMD33S	26.8	7.00	2GCA289344A0030
CLMD33S	28.5 (14.2+14.2)	12.50	2GCA289345A0030
CLMD33S	33.3	-	2GCA289331A0030
CLMD33S	33.3 (16.6+16.6)	-	2GCA289332A0030

U network - 415 V⁽⁴⁾

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	2.7	-	2GCA280554A0030
CLMD45 ⁽³⁾	2.7	-	2GCA281710A0030
CLMD45 ⁽³⁾	4.5	-	2GCA282537A0030
CLMD45 ⁽³⁾	5.5	-	2GCA281168A0030
CLMD13	6.0	-	2GCA280555A0030
CLMD45 ⁽³⁾	6.0	-	2GCA282392A0030
CLMD45 ⁽³⁾	6.5	-	2GCA282538A0030
CLMD13	7.2	-	2GCA281533A0030
CLMD45 ⁽³⁾	7.2	-	2GCA288144A0030
CLMD33S	10.0	-	2GCA289073A0030
CLMD45 ⁽³⁾	10.0	-	2GCA285650A0030
CLMD13	11.0	-	2GCA280556A0030
CLMD45 ⁽³⁾	11.0	-	2GCA281472A0030
CLMD33S	12.5	-	2GCA289074A0030
CLMD45 ⁽³⁾	12.5	-	2GCA280754A0030
CLMD33S	11.4	5.67	2GCA289068A0030
CLMD33S	11.5	7.00	2GCA289068A0030
CLMD13	13.5	-	2GCA280557A0030
CLMD45 ⁽³⁾	13.5	-	2GCA281971A0030
CLMD33S	12.5	5.67	2GCA289080A0030
CLMD33S	12.7	7.00	2GCA289080A0030
CLMD33S	13.5	12.50	2GCA289082A0030
CLMD33S	15.0	-	2GCA289075A0030
CLMD13	16.0	-	2GCA280558A0030
CLMD45 ⁽³⁾	16.0	-	2GCA281360A0030
CLMD13	18.0	-	2GCA280559A0030
CLMD45 ⁽³⁾	18.0	-	2GCA282391A0030
CLMD33S	20.0	-	2GCA289076A0030
CLMD33S	17.5	5.67	2GCA289071A0030
CLMD33S	17.7	7.00	2GCA289071A0030
CLMD43	22.0	-	2GCA280960A0030
CLMD45 ⁽³⁾	22.0	-	2GCA281473A0030
CLMD33S	25.0	-	2GCA289077A0030
CLMD33	26.9	-	2GCA281669A0030
CLMD43	27.0	-	2GCA280774A0030
CLMD45 ⁽³⁾	27.0	-	2GCA281355A0030
CLMD33S	24.7	5.67	2GCA289081A0030
CLMD33S	25.0	7.00	2GCA289081A0030
CLMD43	32.0	-	2GCA280961A0030
CLMD45 ⁽³⁾	32.0	-	2GCA281167A0030
CLMD33S	28.8 (14.4+14.4)	7.00	2GCA289345A0030
CLMD33	32.5	-	2GCA282249A0030
CLMD33S	33 (16.5+16.5)	-	2GCA289334A0030
CLMD53	37.5	-	2GCA280730A0030
CLMD65 ⁽³⁾	37.5	-	2GCA288054A0030
CLMD53	43.0	-	2GCA280776A0030
CLMD65 ⁽³⁾	43.0	-	2GCA286610A0030
CLMD53	50.0	-	2GCA280777A0030
CLMD65 ⁽³⁾	50.0	-	2GCA287889A0030
CLMD63	54.0	-	2GCA280729A0030
CLMD65 ⁽³⁾	54.0	-	2GCA281110A0030

(1) Qnet (kvar) is the net reactive power output in combination with the associated reactor (if existing).

(2) Detuning reactor (%) is the value of the reactor (if existing) connected in series with the capacitor. Reactors are not provided.

(3) Outdoor execution.

(4) All capacitors for 415V network can be used at 400V but their power will be reduced by a factor 0.93 (i.e. (400/415)²).

Other ratings available on request.

U network - 415 V⁽⁴⁾

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD63	65.0	-	2GCA280982A0030
CLMD65 ⁽³⁾	65.0	-	2GCA281242A0030
CLMD63	75.0	-	2GCA280780A0030
CLMD65 ⁽³⁾	75.0	-	2GCA281980A0030
CLMD63	86.0	-	2GCA280781A0030
CLMD65 ⁽³⁾	86.0	-	2GCA281243A0030
CLMD83	110.0	-	2GCA280731A0030
CLMD85 ⁽³⁾	110.0	-	2GCA281111A0030
CLMD85 ⁽³⁾	120.0	-	2GCA285652A0030
CLMD83	130.0	-	2GCA281094A0030
CLMD85 ⁽³⁾	130.0	-	2GCA281496A0030

U network - 525 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	10.0	-	2GCA280842A0030
CLMD33S	10.0	-	2GCA289084A0030
CLMD45 ⁽³⁾	10.0	-	2GCA281815A0030
CLMD33S	12.5	-	2GCA289085A0030
CLMD33S	12.5	5.67	2GCA289088A0030
CLMD33S	12.5	7.00	2GCA289088A0030
CLMD33S	15.0	-	2GCA289117A0030
CLMD33S	16.5	12.50	2GCA289094A0030
CLMD33S	12.5	12.50	2GCA289092A0030
CLMD43	20.0	-	2GCA280852A0030
CLMD33S	20.0	-	2GCA289086A0030
CLMD45 ⁽³⁾	20.0	-	2GCA281814A0030
CLMD33S	25.0	-	2GCA289087A0030
CLMD43	30.0	-	2GCA285296A0030
CLMD45 ⁽³⁾	30.0	-	2GCA285301A0030
CLMD65 ⁽³⁾	30.0	-	2GCA288084A0030
CLMD33S	30 (15+15)	-	2GCA289341A0030
CLMD53	40.0	-	2GCA280855A0030
CLMD65 ⁽³⁾	40.0	-	2GCA289367A0030
CLMD53	50.0	-	2GCA285290A0030
CLMD65 ⁽³⁾	50.0	-	2GCA285219A0030
CLMD63	60.0	-	2GCA280860A0030
CLMD63	80.0	-	2GCA280864A0030
CLMD65 ⁽³⁾	80.0	-	2GCA283731A0030
CLMD63	90.0	-	2GCA285299A0030
CLMD65 ⁽³⁾	90.0	-	2GCA285304A0030
CLMD83	100.0	-	2GCA280865A0030
CLMD85 ⁽³⁾	100.0	-	2GCA282434A0030
CLMD83	120.0	-	2GCA280866A0030
CLMD85 ⁽³⁾	120.0	-	2GCA285401A0030

U network - 550 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	10.0	-	2GCA280566A0030
CLMD43	21.0	-	2GCA280876A0030
CLMD53	32.0	-	2GCA280877A0030
CLMD53	42.0	-	2GCA280878A0030
CLMD63	53.0	-	2GCA280879A0030
CLMD63	74.0	-	2GCA280880A0030
CLMD63	84.0	-	2GCA280881A0030
CLMD83	95.0	-	2GCA280882A0030
CLMD83	105.0	-	2GCA280883A0030

U network - 600 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	12.5	-	2GCA280884A0030
CLMD43	25.0	-	2GCA280886A0030
CLMD53	37.5	-	2GCA280887A0030
CLMD53	50.0	-	2GCA280888A0030
CLMD63	62.0	-	2GCA280889A0030
CLMD63	75.0	-	2GCA280890A0030
CLMD63	85.0	-	2GCA280891A0030
CLMD83	100.0	-	2GCA280892A0030

U network - 660 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	5.0	-	2GCA280567A0030
CLMD13	10.0	-	2GCA280568A0030
CLMD13	15.0	-	2GCA280569A0030
CLMD43	21.0	-	2GCA280914A0030
CLMD53	32.0	-	2GCA280915A0030
CLMD53	42.0	-	2GCA280916A0030
CLMD53	53.0	-	2GCA280917A0030
CLMD83	74.0	-	2GCA280918A0030
CLMD83	85.0	-	2GCA280919A0030
CLMD85 ⁽³⁾	85.0	-	2GCA281575A0030
CLMD83	100.0	-	2GCA282712A0030
CLMD83	105.0	-	2GCA280920A0030
CLMD85 ⁽³⁾	105.0	-	2GCA281576A0030

(1) Qnet (kvar) is the net reactive power output in combination with the associated reactor (if existing).

(2) Detuning reactor (%) is the value of the reactor (if existing) connected in series with the capacitor. Reactors are not provided.

(3) Outdoor execution.

(4) All capacitors for 415V network can be used at 400V but their power will be reduced by a factor 0.93 (i.e. $(400/415)^2$).

Other ratings available on request.

U network - 690 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	5.0	-	2GCA280570A0030
CLMD13	10.0	-	2GCA280571A0030
CLMD33S	10.0	-	2GCA289090A0030
CLMD33S	12.5	-	2GCA289091A0030
CLMD33S	12.5	5.67	2GCA289095A0030
CLMD33S	12.5	7.00	2GCA289095A0030
CLMD33S	12.5	12.50	2GCA289097A0030
CLMD13	15.0	-	2GCA280572A0030
CLMD33S	16.6	-	2GCA289312A0030
CLMD33S	20.0	-	2GCA289093A0030
CLMD33S	25.0	-	2GCA289094A0030
CLMD33S	25.0	5.67	2GCA289096A0030
CLMD33S	25.0	7.00	2GCA289096A0030
CLMD33S	25.0	12.50	2GCA289098A0030
CLMD33S	33 (16.5+16.5)	-	2GCA289342A0030
CLMD53	35.0	-	2GCA282568A0030
CLMD53	50.0	-	2GCA281603A0030
CLMD63	75.0	-	2GCA283326A0030
CLMD63	80.0	-	2GCA288925A0030
CLMD83	100.0	-	2GCA282435A0030
CLMD83	120.0	-	2GCA282159A0030

Range-50Hz - Single-phase

U network - 400 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	8.0	-	2GCA293430A0030
CLMD13	11.1	-	2GCA287000A0030

U network - 415 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	2.7	-	2GCA292770A0030
CLMD13	16.0	-	2GCA282710A0030
CLMD43	22.0	-	2GCA292830A0030
CLMD63	54.0	-	2GCA280706A0030
CLMD63	65.0	-	2GCA288105A0030

U network - 660 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD63	58.0	-	2GCA280625A0030
CLMD63	63.0	-	2GCA283120A0030

(1) Qnet (kvar) is the net reactive power output in combination with the associated reactor (if existing).

(2) Detuning reactor (%) is the value of the reactor (if existing) connected in series with the capacitor. Reactors are not provided.

Technical specifications

Range-60Hz

U network - 208 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD45 ⁽³⁾	9.8	-	2GCA283280A0030

U network - 220 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD33S	6.3	-	2GCA289103A0030
CLMD33S	10.0	-	2GCA289105A0030
CLMD33S	12.5	-	2GCA289106A0030
CLMD65 ⁽³⁾	50.0	-	2GCA282030A0030

U network - 240 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD33S	6.3	-	2GCA289099A0030
CLMD33S	10.0	-	2GCA289100A0030
CLMD33S	12.5	-	2GCA289102A0030
CLMD33S	18 (9+9)	-	2GCA289327A0030
CLMD33S	21 (10.5+10.5)	-	2GCA289326A0030
CLMD33S	6.3	6.00	2GCA289102A0030
CLMD33S	12.5	6.00	2GCA289105A0030
CLMD33S	16.7	6.00	2GCA289107A0030
CLMD33S	6.3	7.00	2GCA289102A0030
CLMD33S	12.5	7.00	2GCA289105A0030
CLMD33S	16.7	7.00	2GCA289107A0030
CLMD33S	12.5	12.50	2GCA289109A0030

U network - 260 V⁽⁴⁾

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	3.5	-	2GCA281322A0030
CLMD13	5.0	-	2GCA281323A0030
CLMD13	7.0	-	2GCA281324A0030
CLMD13	12.0	-	2GCA281325A0030
CLMD43	17.0	-	2GCA280964A0030
CLMD53	25.0	-	2GCA280965A0030
CLMD53	29.0	-	2GCA281327A0030
CLMD53	36.0	-	2GCA280966A0030
CLMD63	50.0	-	2GCA280967A0030
CLMD63	60.0	-	2GCA280968A0030
CLMD63	74.0	-	2GCA280969A0030

(1) Qnet (kvar) is the net reactive power output in combination with the associated reactor (if existing).

(2) Detuning reactor (%) is the value of the reactor (if existing) connected in series with the capacitor. Reactors are not provided.

(3) Outdoor execution.

(4) All capacitors for 415V network can be used at 400V but their power will be reduced by a factor 0.93 (i.e. (400/415)²).

Other ratings available on request.

U network - 380 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD45 ⁽³⁾	5.0	-	2GCA281466A0030
CLMD45 ⁽³⁾	10.0	-	2GCA281468A0030
CLMD33S	10.0	-	2GCA289073A0030
CLMD33S	12.5	-	2GCA289074A0030
CLMD33S	12.5	7.00	2GCA289110A0030
CLMD33S	12.5	6.00	2GCA289110A0030
CLMD33S	12.5	12.50	2GCA289082A0030
CLMD33S	15.0	-	2GCA289075A0030
CLMD45 ⁽³⁾	15.0	-	2GCA281571A0030
CLMD33S	20.0	-	2GCA289076A0030
CLMD43	25.0	-	2GCA280972A0030
CLMD45 ⁽³⁾	25.0	-	2GCA281464A0030
CLMD33S	25.0	-	2GCA289077A0030
CLMD33S	25.0	7.00	2GCA289111A0030
CLMD33S	25.0	6.00	2GCA289111A0030
CLMD33S	30 (15+15)	-	2GCA289329A0030
CLMD63	50.0	-	2GCA288794A0030
CLMD85 ⁽³⁾	70.0	-	2GCA283418A0030
CLMD83	100.0	-	2GCA280978A0030

U network - 415 V⁽⁴⁾

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	4.5	-	2GCA281328A0030
CLMD13	6.5	-	2GCA281329A0030
CLMD13	8.6	-	2GCA281330A0030
CLMD13	13.0	-	2GCA281331A0030
CLMD13	16.0	-	2GCA281332A0030
CLMD13	18.0	-	2GCA281333A0030
CLMD33S	25.0	-	2GCA289689A0030
CLMD43	26.0	-	2GCA281334A0030
CLMD53	32.0	-	2GCA281335A0030
CLMD53	37.5	-	2GCA281341A0030
CLMD63	43.0	-	2GCA281342A0030
CLMD63	48.0	-	2GCA281343A0030
CLMD63	54.0	-	2GCA281344A0030
CLMD65 ⁽³⁾	54.0	-	2GCA292320A0030
CLMD63	65.0	-	2GCA281345A0030
CLMD83	75.0	-	2GCA281346A0030
CLMD83	90.0	-	2GCA281347A0030
CLMD83	105.0	-	2GCA281348A0030

U network - 440 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD33S	8.4	-	2GCA289115A0030
CLMD33S	10.5	-	2GCA289116A0030
CLMD33S	12.5	-	2GCA289117A0030
CLMD33S	16.7	-	2GCA289118A0030
CLMD33S	25.0	-	2GCA289114A0030
CLMD33S	29 (14.5+14.5)	-	2GCA289335A0030

U network - 460 V⁽⁴⁾

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	9.0	-	2GCA281123A0030
CLMD13	14.0	-	2GCA281119A0030
CLMD43	18.0	-	2GCA280815A0030
CLMD43	27.5	-	2GCA280817A0030
CLMD53	32.0	-	2GCA280818A0030
CLMD53	40.0	-	2GCA280819A0030
CLMD63	55.0	-	2GCA280820A0030
CLMD83	70.0	-	2GCA280822A0030
CLMD83	80.0	-	2GCA280823A0030
CLMD83	95.0	-	2GCA280824A0030
CLMD83	110.0	-	2GCA280825A0030

U network - 480 V⁽⁵⁾

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD45 ⁽³⁾	5.0	-	2GCA281462A0030
CLMD13	10.0	-	2GCA281118A0030
CLMD33S	10.0	-	2GCA289115A0030
CLMD45 ⁽³⁾	10.0	-	2GCA281461A0030
CLMD33S	12.5	-	2GCA289116A0030
CLMD33S	12.5	7.00	2GCA289088A0030
CLMD33S	12.5	5.67	2GCA289088A0030
CLMD33S	12.5	12.50	2GCA289120A0030
CLMD13	15.0	-	2GCA281120A0030
CLMD33S	15.0	-	2GCA289117A0030
CLMD43	20.0	-	2GCA280826A0030
CLMD33S	20.0	-	2GCA289118A0030
CLMD45 ⁽³⁾	20.0	-	2GCA281539A0030
CLMD43	25.0	-	2GCA280827A0030
CLMD45 ⁽³⁾	25.0	-	2GCA281540A0030
CLMD53	30.0	-	2GCA280828A0030
CLMD33S	30 (15+15)	-	2GCA289341A0030
CLMD53	35.0	-	2GCA280829A0030
CLMD63	40.0	-	2GCA280830A0030
CLMD63	45.0	-	2GCA280831A0030
CLMD63	50.0	-	2GCA281541A0030
CLMD65 ⁽³⁾	50.0	-	2GCA288965A0030
CLMD63	60.0	-	2GCA280833A0030
CLMD83	70.0	-	2GCA280834A0030
CLMD83	75.0	-	2GCA280835A0030
CLMD83	80.0	-	2GCA280836A0030
CLMD83	90.0	-	2GCA280837A0030
CLMD83	100.0	-	2GCA280963A0030
CLMD83	120.0	-	2GCA286053A0030

(1) Qnet (kvar) is the net reactive power output in combination with the associated reactor (if existing).

(2) Detuning reactor (%) is the value of the reactor (if existing) connected in series with the capacitor. Reactors are not provided.

(3) Outdoor execution.

(4) All capacitors for 460V network can be used at 440V but their power will be reduced by a factor 0.91 (i.e. (440/460)²).

(5) All capacitors for 480V network can be used at 440V but their power will be reduced by a factor 0.84 (i.e. (440/480)²).

Other ratings available on request.

U network - 525 V⁽⁴⁾

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	12.0	-	2GCA280867A0030
CLMD13	15.0	-	2GCA285284A0030
CLMD43	24.0	-	2GCA280868A0030
CLMD33S	30.0	-	2GCA289087A0030
CLMD53	36.0	-	2GCA280869A0030
CLMD53	48.0	-	2GCA280870A0030
CLMD63	60.0	-	2GCA280871A0030
CLMD63	72.0	-	2GCA280872A0030
CLMD63	84.0	-	2GCA285298A0030
CLMD83	96.0	-	2GCA280873A0030
CLMD83	120.0	-	2GCA285400A0030

U network - 600 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	10.0	-	2GCA280898A0030
CLMD33S	10.0	-	2GCA289122A0030
CLMD33S	12.5	-	2GCA289123A0030
CLMD33S	12.5	6.00	2GCA289126A0030
CLMD33S	12.5	7.00	2GCA289126A0030
CLMD33S	12.5	12.50	2GCA289128A0030
CLMD33S	20.0	-	2GCA289124A0030
CLMD33S	25.0	-	2GCA289125A0030
CLMD33S	25.0	6.00	2GCA289127A0030
CLMD33S	25.0	7.00	2GCA289127A0030
CLMD33S	25.0	12.50	2GCA289295A0030
CLMD13	15.0	-	2GCA280899A0030
CLMD43	20.0	-	2GCA280900A0030
CLMD43	25.0	-	2GCA280901A0030
CLMD45 ⁽³⁾	5.4	-	2GCA280713A0030
CLMD53	30.0	-	2GCA280902A0030
CLMD33S	30.0	-	2GCA289342A0030
CLMD33S	33.0	-	2GCA289311A0030
CLMD53	35.0	-	2GCA280903A0030
CLMD53	40.0	-	2GCA280904A0030
CLMD53	50.0	-	2GCA280906A0030
CLMD83	70.0	-	2GCA280908A0030
CLMD83	80.0	-	2GCA280910A0030
CLMD85 ⁽³⁾	80.0	-	2GCA281880A0030
CLMD83	90.0	-	2GCA280911A0030
CLMD83	100.0	-	2GCA280912A0030

U network - 660 V

Type	Qnet (kvar) ⁽¹⁾	Detuning reactor (%) ⁽²⁾	Article number
CLMD13	12.5	-	2GCA280921A0030
CLMD43	25.0	-	2GCA280922A0030
CLMD53	38.0	-	2GCA280923A0030
CLMD63	50.0	-	2GCA280924A0030
CLMD63	63.0	-	2GCA280925A0030
CLMD83	75.0	-	2GCA280926A0030
CLMD83	88.0	-	2GCA280927A0030
CLMD83	100.0	-	2GCA280928A0030

(1) Qnet (kvar) is the net reactive power output in combination with the associated reactor (if existing).

(2) Detuning reactor (%) is the value of the reactor (if existing) connected in series with the capacitor. Reactors are not provided.

(3) Outdoor execution.

(4) All capacitors for 415V network can be used at 400V but their power will be reduced by a factor 0.93 (i.e. $(400/415)^2$).

Other ratings available on request.

Technical specifications

CLMD

Voltage range	Up to 1000 V
Frequency	50 and 60 Hz
Connection	Three-phase as standard construction (single-phase on request)
Net output power	From 3.3 to 120 kvar
Tolerance on capacitance	0 % /+ 10 %
Losses (discharge resistors included)	Typically < 0.5 Watt/kvar for 380 V rated voltage and above
Discharge resistors	Permanently connected built-in discharge resistors are sized to ensure safe discharge of the capacitor to less than 50V in 1 minute after a switch off. Minimum time between disconnection and re-energization: 40 seconds
Maximum permissible current	1.3 x I _n for continuous operation
Tolerance on voltage	30% for maximum 1 minute (according to IEC 60831)
Case material	Zinc electroplated mild steel
Color	Beige RAL 7032
Fixing	CLMD13: with two slots, diameter 6.5 mm (suitable fixing for assembly in module) CLMD33S: with eight fixation holes, diameter 5.4 mm CLMD43-53-63-83: with two slots 26 X 12 mm
Weight	CLMD13: approximately 2.5 kg CLMD33 and CLMD33S: approximately 3.5 kg CLMD43: approximately 6 kg CLMD53: approximately 11 kg CLMD63: approximately 15 kg CLMD83: approximately 23 kg
Terminals	CLMD13: three M6 terminals CLMD33S: three cable outputs (6, 10, 16 mm ²), 50 cm long CLMD43-53-63-83: with threaded rods M6, 8, 10 or 12 according to the power of the capacitor
Minimum distance between units	CLMD13-33S: 20 mm (25 mm for units > 30 kvar) CLMD43-53-63-83: 50 mm
Minimum distance between units and wall	CLMD13-33 : 20 mm (25 mm for units > 30 kvar) CLMD43-53-63-83: 50 mm
Earth	CLMD13-33S: earth connection on the enclosure fixation CLMD43-53-63-83: a M8 terminal is included under the cover
Execution	Indoor (outdoor on request)
Maximum ambient temperature	Class „D“ (+55°C) according to IEC 60831
Minimum ambient temperature	Indoor type: -25°C Outdoor type: -40°C
Altitude	Up to 1000 m
Protection	CLMD13-43-53-63-83: IP42 (IP54 on request) CLMD33S: IP40
Cable input	By a knock out: CLMD13: 22.5 mm CLMD43-53: 37 mm CLMD63-83: 47 mm
Voltage test	Between terminals: 2.15 U _n for 10 seconds Between terminals and earth: 3 kV for 10 seconds for UN < 500 V and 4 kV for 10 seconds for UN > 500 V
Lightning impulse voltage test	CLMD13-43-53-63-83: 15 kV CLMD33S: 8 kV
The acceptable overloads are those specified in IEC 60831-1&2	Overvoltage tolerance: 10% max. at intervals Overcurrent tolerance: 30% permanently Maximum overload: stable operation at 135% of the nominal rating (generated by overvoltages and harmonics)

IMPORTANT: The installation of capacitors on networks disturbed by harmonics may require special precautions, especially when there is a risk of resonance.

Hitachi Energy's commitment

Quality assurance

At Hitachi Energy, we are committed to providing the best products and services. Our products comply with or exceed the latest international standards. In addition to type tests in independent laboratories, our certified design and manufacturing processes guarantee the highest quality. We are certified according to the latest relevant ISO quality standards.

Sustainability

For Hitachi Energy, sustainability is about balancing economic success, environmental stewardship and social progress to benefit all our stakeholders. Sustainability considerations cover how we design and manufacture products, what we offer customers, how we engage suppliers, how we assess risks and opportunities, and how we behave in communities where we operate and towards one another, while striving to ensure the health, security and safety of our employees, contractors and others affected by our activities. We are certified according to the latest relevant ISO quality standards.



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